

WHAT IS CLAIMED IS:

1. A method for accessing a proximity service, comprising:

5 a client device forming a direct point-to-point communication link with a service device;

the client device directly requesting to the service device a document that describes an interface to access a service provided by the service device;

10 the client device receiving said document directly from the service device, wherein said document comprises information describing how to access the service;

15 wherein said requesting and said receiving are performed over said direct point-to-point communication link; and

the client device using the information from said document to access the service.

20 2. The method as recited in claim 1, wherein said requesting comprises the client sending an advertisement request message for the service to the service device over the direct point-to-point communication link, wherein the advertisement request message is in a data representation language.

25 3. The method as recited in claim 2, wherein the data representation language is eXtensible Markup Language (XML).

4. The method as recited in claim 1, wherein said document comprises a service advertisement for the service, wherein said service advertisement comprises a schema 30 specifying an interface to at least a portion the service.

5. The method as recited in claim 4, wherein said schema is an eXtensible Markup Language (XML) schema defining XML messages for a client on the client device to send to the service and the service to send to the client in order for the client to access
5 capabilities of the service.

6. The method as recited in claim 5, wherein the client device using the information from said document comprises the client sending one or more of said XML messages to the service over said direct point-to-point communication link.

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7. The method as recited in claim 1, wherein said receiving comprises receiving said document in an advertisement request response message sent from the service over said direct point-to-point communication link, wherein the advertisement request response message is in a data representation language.

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8. The method as recited in claim 7, wherein the data representation language is eXtensible Markup Language (XML).

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9. The method as recited in claim 1, wherein the client device is in physical proximity of the service device.

10. The method as recited in claim 1, wherein said direct point-to-point communication link is an IrDA infrared link.

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11. The method as recited in claim 1, wherein the client device is in wireless proximity of the service device.

12. The method as recited in claim 1, wherein said requesting comprises including a client security credential in a request to said service device for said document, and

wherein said service device authenticates said client security credential before sending said document to the client device.

13. The method as recited in claim 1, wherein said client device using the information
5 from said document to access the service comprises:

a client on the client device requesting a security credential from an authentication service specified in said document;

10 the client receiving said security credential; and

the client including said security credential with a subsequent request to the service to access a capability of the service.

15 14. The method as recited in claim 13, further comprising the service verifying the client's security credential before allowing access to the capability.

15. The method as recited in claim 14, wherein said authentication service is provided by the service device.

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16. The method as recited in claim 1, wherein the client device supports a transport connection in addition to said direct point-to-point communication link, wherein said client device using the information from said document to access the service comprises the client device making said document available to other devices over said transport connection, wherein the client device provides a bridge from said transport connection to said direct point-to-point communication link so that the other devices may access the service.

25 17. The method as recited in claim 16, wherein said transport connection comprises a network connection.

18. The method as recited in claim 17, wherein said network connection comprises an Internet connection.

5 19. A system, comprising:

a service device configured to support a direct point-to-point communication link and provide a service;

10 a client device configured to form said direct point-to-point communication link with the service device;

15 wherein the client device is further configured to directly request from the service device a document that describes an interface to access the service;

wherein the service device is further configured to provide said document directly to the client device over said direct point-to-point communication link; and

20 wherein the client device is further configured to use the information from said document to access the service.

20. The system as recited in claim 19, wherein the client device is configured to request said document by sending an advertisement request message for the service to the service device over the direct point-to-point communication link, wherein the advertisement request message is in a data representation language.

21. The system as recited in claim 20, wherein the data representation language is eXtensible Markup Language (XML).

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22. The system as recited in claim 19, wherein said document comprises a service advertisement for the service, wherein said service advertisement comprises a schema specifying an interface to at least a portion the service.

5 23. The system as recited in claim 22, wherein said schema is an eXtensible Markup Language (XML) schema defining XML messages for a client on the client device to send to the service and the service to send to the client in order for the client to access capabilities of the service.

10 24. The system as recited in claim 23, wherein the client device is configured to use the information from said document to send one or more of said XML messages to the service over said direct point-to-point communication link.

15 25. The system as recited in claim 19, wherein the client device is configured to receive said document in an advertisement request response message sent from the service over said direct point-to-point communication link, wherein the advertisement request response message is in a data representation language.

20 26. The system as recited in claim 25, wherein the data representation language is eXtensible Markup Language (XML).

27. The system as recited in claim 19, wherein the client device is in physical proximity of the service device.

25 28. The system as recited in claim 19, wherein said direct point-to-point communication link is an IrDA infrared link.

29. The system as recited in claim 19, wherein the client device is in wireless proximity of the service device.

30. The system as recited in claim 19, wherein the client device is configured to include a client security credential in a request to said service device for said document; and wherein said service device is configured to authenticate said client security credential before sending said document to the client device.

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31. The system as recited in claim 19, wherein said client device is configured to:

request a security credential from an authentication service specified in said document;

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receive said security credential; and

include said security credential with a subsequent request to the service to access a capability of the service.

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32. The system as recited in claim 32, wherein the service is configured to verify the client's security credential before allowing access to the capability.

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33. The system as recited in claim 32, wherein said authentication service is provided by the service device.

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34. The system as recited in claim 19, wherein the client device is configured to support a transport connection in addition to said direct point-to-point communication link, wherein said client device is further configured to make said document available to other devices over said transport connection and provide a bridge from said transport connection to said direct point-to-point communication link so that the other devices may access the service.

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35. The system as recited in claim 34, wherein said transport connection comprises a network connection.

36. The system as recited in claim 35, wherein said network connection comprises an Internet connection.

5 37. A client device, comprising:

a port configured to form a direct point-to-point communication link with a service device;

10 an interface configured to directly request over the point-to-point communication link a document that describes an interface to access a service;

15 wherein the interface is further configured to receive said document directly from the service over the point-to-point communication link; and

15 wherein the interface is further configured to use the information from said document to access the service.

38. A service device, comprising:

20 a port configured to form a direct point-to-point communication link with a client device;

25 an interface configured to receive over the point-to-point communication link a request from a client for a document that describes an interface to access the service, wherein the interface is further configured to provide said document directly to the client over the point-to-point communication link; and

a service unit configured to be accessed by the client according to information specified in said document.

39. A carrier medium comprising program instructions, wherein the program
5 instructions are computer-executable on a client device to implement:

forming a direct point-to-point communication link with a service device;

10 directly requesting to the service device a document that describes an interface to access a service provided by the service device;

receiving said document directly from the service device, wherein said document comprises information describing how to access the service;

15 wherein said requesting and said receiving are performed over said direct point-to-point communication link; and

using the information from said document to access the service.

20 40. The carrier medium as recited in claim 39, wherein said requesting comprises the client sending an advertisement request message for the service to the service device over the direct point-to-point communication link, wherein the advertisement request message is in a data representation language.

25 41. The carrier medium as recited in claim 40, wherein the data representation language is eXtensible Markup Language (XML).

42. The carrier medium as recited in claim 39, wherein said document comprises a service advertisement for the service, wherein said service advertisement comprises a
30 schema specifying an interface to at least a portion the service.

43. The carrier medium as recited in claim 42, wherein said schema is an eXtensible Markup Language (XML) schema defining XML messages for a client on the client device to send to the service and the service to send to the client in order for the client to access capabilities of the service.

44. The carrier medium as recited in claim 43, wherein said using the information from said document comprises the client sending one or more of said XML messages to the service over said direct point-to-point communication link.

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45. The carrier medium as recited in claim 39, wherein said receiving comprises receiving said document in an advertisement request response message sent from the service over said direct point-to-point communication link, wherein the advertisement request response message is in a data representation language.

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46. The carrier medium as recited in claim 45, wherein the data representation language is eXtensible Markup Language (XML).

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The carrier medium as recited in claim 39, wherein the client device is in physical proximity of the service device.

48. The carrier medium as recited in claim 39, wherein said direct point-to-point communication link is an IrDA infrared link.

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The carrier medium as recited in claim 39, wherein the client device is in wireless proximity of the service device.

50. The carrier medium as recited in claim 39, wherein said requesting comprises including a client security credential in a request to said service device for said document,

and wherein said service device authenticates said client security credential before sending said document to the client device.

51. The carrier medium as recited in claim 39, wherein said using the information
5 from said document to access the service comprises:

a client on the client device requesting a security credential from an authentication service specified in said document;

10 the client receiving said security credential; and

the client including said security credential with a subsequent request to the service to access a capability of the service.

15 52. The carrier medium as recited in claim 39, wherein the client device supports a transport connection in addition to said direct point-to-point communication link, wherein said using the information from said document to access the service comprises making said document available to other devices over said transport connection providing a bridge from said transport connection to said direct point-to-point communication link so 20 that the other devices may access the service.

53. The carrier medium as recited in claim 52, wherein said transport connection comprises a network connection.

25 54. The carrier medium as recited in claim 53, wherein said network connection comprises an Internet connection.